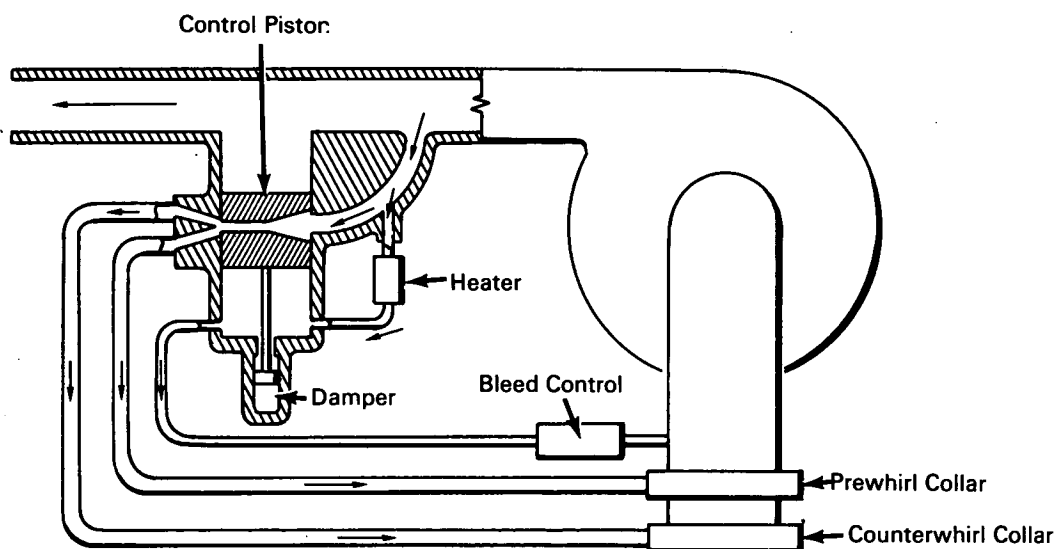


NASA TECH BRIEF



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Negative Feedback System Reduces Pump Oscillations



EXTERNAL NEGATIVE FEEDBACK SYSTEM

The problem:

To devise a method for counteracting low frequency oscillations in rocket engine propellant pumps. Previous methods such as gas injection and holes in inducer blades to counteract oscillations were only partially satisfactory.

The solution:

An external negative feedback system which utilizes a control piston to sense pump discharge fluid on one side and a gas pocket on the other.

How it's done:

The system consists of a control piston which dispatches control fluid to either the prewhirl collar or the counterwhirl collar, as required. The former low-

ers the fluid level and the latter raises the fluid level through the pump. The control piston senses pump discharge fluid on one side and a gas pocket on the other. The gas pocket has enough volume to maintain a constant pressure with slight piston motions.

Notes:

1. This development is in conceptual stage only, and as of date of publication of this Tech Brief, neither a model nor prototype has been constructed.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10064

(continued overleaf)

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: Walter Rosenmann
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
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